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ABSTRACT

Although much research has been done examining adult stressors, only recently have researchers focused attention on measuring levels of stress in children. Because children tend not to be aware of their own tense state, instruments are needed to measure levels of stress in children. The two main methods of measuring stress in children are to ask the child directly and to use significant adults in the child's environment to rate the child's level of stress. This paper describes and evaluates several methods of measuring stress in children: (1) Coddington's Life Events Scale-Children; (2) Chandler's Stress Response Scale; (3) Webb, VanDevere, and Ott's Structured Pediatric Psychosocial Interview; (4) Phillips' Children's School Questionnaire; and (5) Wiggins, McCranie, and Bailey's Psychological Stress Evaluator. It is noted that the limited research which characterizes most of these instruments presents problems of reliability and validity. The use of a multi-measurement approach by a school psychologist to assess the effects of stress on an individual child is recommended. These factors are listed: identification of stressors in the child's life, the child's adjustment to and perception of these stressors, and assessment of the impact of the stressors on the child's functioning. The paper concludes by noting that the instruments provide information useful in understanding a child as well as in designing a stress management plan. (ABL)

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MEASURING CHILDREN'S STRESS: AN EVALUATION OF METHODS

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Measuring Children's Stress: An Evaluation of Methods

Within the last six months, Johnny's parents were divorced, and Johnny and his mother moved to a new apartment in a different city. Johnny is going to a new school and his mother is working long hours at a new job. Does Johnny have an excessive level of stress?

Because of the relatively recent understanding of effects of stressors on an individual's social adaptation and state of mental and physical health, more and more attention has been directed toward the study of stress. Much research has been done examining adult stressors. Only in more recent years have researchers focused attention on measuring levels of stress in children. Generally adults recognize when they are experiencing stress (Thorensen & Eagleston, 1983) while children tend not to be aware of their own tense state (Karnes, Oehler, & Jones, 1985). For this reason instruments to measure levels of stress in children are needed.

Hence, the primary purpose of this paper is to review methods which have been used to evaluate levels of stress in preschool and elementary school children and to recommend how these methods could be useful to the practicing school psychologist. Basically

there are two main methods of measuring levels of stress in children. One method is to ask the child directly. The other method utilizes significant adults in the child's environment to rate the child's level of stress.

One of the problems related to studying stress in childhood has been the lack of a precise definition of stress. Chandler (1984) noted that the concept of stress is overly inclusive and rather vague. This presentation will adopt the definition offered by Dobson and Metcalfe (1983). They state that "stress is a (perceived) substantial imbalance between demand and response capability under conditions where failure to meet demand has important (perceived) consequences." Arent (1984) notes that stress is a normal part of growing up and can be either nontraumatic and motivating or traumatic and painful.

The effects of traumatic life events have been found to leave children, just as adults, more vulnerable to a variety of both psychological and medical disorders (Thorenson & Eagleston, 1983). Coddington (1972) states that traumatic life events are difficult to identify as to specific importance due to the variation of effect from child to child. Such things as "age, sex, genetic factors, temperament, intelligence, and problem solving skills"

(Chandler, Shermis, & Marsh, 1985, p. 15) have impact upon the stress responses of children.

Most studies have depended upon adult's judgements to rate the stressfulness of events in children's lives (Yamamoto, 1979). Some of the earliest research on stress levels of children was done by Coddington (1972). Using a modified Holmes and Rahe (1967) method, he canvassed teachers, pediatricians, and mental health workers employed in child psychiatry. They were asked to rate a series of life events as to their relative degree of necessary readjustment for children of four different age groups: preschool, elementary, junior high school, and high school. Items were arranged in rank order according to severity of stress reaction for each age group and labeled Life Change Units (LCU). A Life Change Unit was almost any event involved in bringing some kind of change into a child's life whatever his or her age. At the two younger age levels the death of a parent was rated most stressful, closely followed by parental divorce. At the junior high school level unwed pregnancy moved ahead of death and divorce of parents. Certain items, such as birth of sibling, death of a sibling, or loss of a job by a parent were contained in all of the lists but ranked in different order of different age groups.

Positive appearing events were also considered stressful, although ranked lower. For example, an outstanding personal achievement was included in all four age groupings while becoming a full-fledged member of a church was on the lists for the three older groups.

Coddington (1972) subsequently conducted a second survey of parents of over 3500 normal, healthy children in an effort to identify the amount of social readjustment required by the environments of these children. The Life Change Units from the first study were on the survey and the frequencies measured. An age-related curve of average social readjustment scores comparable to a growth curve was constructed from this research. These two studies have frequently been cited as a basis for other research measuring levels of stress.

A slightly different approach was utilized by Chandler (1984). He proposed that children adopt a preferred response pattern of behavior in attempting to cope with stress in their lives. Chandler's Stress Response Scale is used to assess the impact of stress on the child's behavioral adjustment. The Stress Response Scale was designed for use with children of elementary school age who have been referred for possible emotional

adjustment problems. It was intended that the scale be completed by the referring adult who rates forty items. A raw score is then calculated from the items' assigned weighted values. Using normative tables, the raw score is converted to a T-score and a percentile rank. Using a profile chart it is possible to construct a profile of a individual child's preferred pattern of responses to stress. Interventions may then be directed at helping the child learn more effective means of coping with stress.

A few studies have had children, particularly school aged children, rate levels of stress for themselves. Yamamoto (1979) had children in fourth, fifth, and sixth grades rate twenty life events on a seven point scale to determine if their perceptions generally agreed with those of adult experts. There was agreement between children and professionals in some areas, for example, that of parental death and academic retention. However, there were surprising instances of disagreement. Children rated parental fights as more stressful than the birth of a sibling while professionals rated those events in reverse order. Children also rated getting a poor report card, giving a class report, or losing in a game as being more stressful than the birth of a

sibling. This study confirmed the need for children's input in scales which rate children's levels of stress.

Webb, VanDevere, and Ott (1984) used an individually administered instrument to compare levels of stress in elementary school age children with levels of stress in adolescents. The Structured Pediatric Psychosocial Interview (SSPI) contained over 50 question scenarios with 200 potentially scorable responses in a highly structured format. It identified nine fundamental dimensions where children were felt to communicate stress. On eight of the nine affective variables measured, elementary school students showed as great, if not greater, levels of stress than adolescents. The authors stated that the SSPI could be quite valuable to educational professionals in detecting emotional needs and in better understanding students.

Phillips (1978) also used children to rate their own levels of stress, but his study was unique in that he used only stressful events occurring within the school environment. His subjects were fourth grade children from four elementary schools rated as highly homogeneous in terms of racial/ethnic characteristics and social class. Factors such as Test Anxiety, Lack of Confidence in Meeting Expectations of Others, and Fear of Assertiveness and

Self-Expression were included in his instrument called the Children's School Questionnaire. It contained 198 questions which were read aloud to the children. The information that was obtained was primarily indicative of two types of stressful situations. One involved achievement stressors, and the other concerned social stressors. A majority of the children felt stressed because it was hard for them to do as well as the teacher expected. Another item of high stress was reciting in classes. Over half of all children felt that making a mistake would lead to laughter from their peers. Many believed that smart children get privileges that other children do not get. Social stress was lower, possibly because of the strong achievement orientation in elementary schools. The higher scoring social stressors were such items as feelings of not being liked by peers or by the teacher. School events, school conditions, and interpersonal characteristics were all found to be sources of school stress. It is obvious that a great deal of stress is inherent in the competitiveness of the typical elementary school environment.

The previously mentioned research investigations have demonstrated the two main methods of measuring stress levels in children, namely ratings by adults significant to the child and

ratings by the child him or herself. In addition, a third method has involved a search for a purely objective instrument to measure levels of stress in children. The purpose of this type of assessment would be to avoid the element of human error inherent in self-reporting instruments. An assessment of voice stress in children was accomplished by the use of the Psychological Stress Evaluator (PSE-1) (Wiggins, McCranie, & Bailey, 1975). This device was "designed to measure audible and inaudible voice frequencies whose strengths and patterns relate inversely to the degree of psychological stress in the voice of the speaker" (Wiggins, et al., 1975, 420). This limited study used six-year-old psychiatric patients. Due to a lack of consistent standards for the instrument, these researchers noted the difficulty of validating this instrument. However, such an instrument might prove valuable during an initial evaluation of a student.

Another study compared the relationship between biofeedback and tension as measured by an Electomyogram (EMG) and a self-report inventory, the Children's Personality Questionnaire (CPQ) (Karnes, et al., 1985). The results obtained significant correlation between the two measures. This interesting innovation

needs further investigation. Such an instrument might also be useful used in treatment involving teaching students to deal with excessive levels of stress.

Each of the three methods discussed previously measures a different dimension of stress. Since stress is a function of environmental, social, cognitive, and emotional responses, the school psychologist should use a multi-measurement approach to assess the effects of stress on an individual child.

Chandler (1983) suggested that a multi-dimensional assessment of stress should be concerned with the following four factors:

(1) Identification of stressors in the child's life

(2) The child's perception of those stressors

(3) The child's behavioral adjustment to the stressors

(4) Assessment of the impact of the stressor on the child's health, school, and social functioning.

Chandler's four factors will be used to evaluate the three, previously discussed methods used to measure stress. Coddington's (1972) Life Events Scale-Children (LES-C) is helpful to identify the sources of stress in an individual child's life. Although the LES-C norms were based upon over 3,500 children, they are now over 15 years old. When the LES-C was published, Coddington predicted

that in the future, children would continue to experience more life change events. His predictions appear to be true. Certainly with the incidence of divorce increasing the average LCU has increased. Coddington (1984) recently concluded that there should not be attempts to refine current measures of environmental stressfulness, such as the LES-C. He felt that an effort to refine the instruments would never result in an instrument psychometrically comparable with the WISC-R. He concluded that efforts should be directed toward increasing their value by including other factors in the equation such as personal coping styles, family supportiveness, religiousity, and other support networks.

The LES-C can be helpful in the assessment of children by simply calling attention to events the school psychologist may have neglected to discover. The LES-C directs attention to the occurrence of events, the effects of which then require further exploration. For example, if the children has experienced many life changes, both the school and the parents may try to reduce the number of life change events the child will experience in the near future. It is also important to learn of additional life changes which the parent has experienced. Hodges, Tierney, &

Buchsbaum (1984) concluded that mothers' stressful life events had more effect on their preschool children's adjustment than the children's own stressful life events.

The child's perceptions of the stressors identified by the LES-C or a similar scale can be determined by interviewing the child. Although new and thus lacking in research data, the Structured Pediatric Psychosocial Interview (SSPI) (Webb, VanDevere, & Ott, 1983) provides an opportunity to gain information about stresses unique to the child. The SPPI may go beyond an assessment tool because it can provide a context of mutual sharing between the psychologist and the child.

If one is concerned with the child's perceptions of stressors related to the school specifically, Phillips' (1978) Children's School Questionnaire would be the instrument of choice. However, because of the structured nature of this pencil-paper instrument, the investigation of unique stressors affecting the child's life is not possible. It does examine situations in which school personnel have the most input.

The third area which Chandler believes should be assessed is the child's behavioral adjustment to stress or his/her coping responses. This can probably be best evaluated through Chandler's

Stress Response Scale. It might be helpful to have both parents and the teachers complete the scale for a specific child. This would allow comparisons of the different settings in which the child participates. If the child makes the same response in different settings this would indicate the child is more seriously effected by the stress in his/her life.

The fourth and final dimension Chandler recommends to be assessed is the impact of the stressor on the child's health, school and social functioning. Since this is an assessment area which is familiar to school psychologists, it will not be discussed further.

The use of electronic equipment to assess stress does not easily fall into Chandler's assessment model. However, the use of the EMG and other biofeedback equipment has demonstrated effectiveness in stress reduction among adults. Possibly, the initial reading of muscle tension on the EMG could serve as a baseline for the child beginning a relaxation program. Continuous use of the EMG and/or other biofeedback equipment becomes an important aspect of learning relaxation techniques which could be an important intervention strategy for the child experiencing a high level of stress.

The methods which have been reviewed have possible uses as both research instruments and as tools for the practicing psychologist. The limited research which characterizes most of them presents problems of reliability and validity. Coddington's (1972) and Chandler's (1984) instruments have the most research data. However, Phillip's (1978) instrument is very relevant to school psychologists and other professionals in the school setting. Keep in mind, there are many variables involved in assessing levels of stress. Some other questions to be considered include: Is a child such as Johnny dealing with biophysical as well as psychosocial stressors? What are his personal strengths? Does he have the support of others in his environment? Some of the instruments reviewed may lack validation, but should be considered as possible screening devices. A rating scale alone is not enough to say that Johnny is dealing with an excessive level of stress, but it is a point from which to begin. Finally, these instruments may provide information useful in understanding a child such as Johnny as well as designing as individual multi-dimensional stress management plan.

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